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EXAMINER

PHAM, MICHAEL

ART UNIT PAPER NUMBER

2167

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/660,166	DAY ET AL.	
	Examiner	Art Unit	
	Michael D. Pham	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Claims 1 - 23 have been examined.
2. Claims 1 - 23 are pending.
3. Claims 1 - 23 are rejected as detailed below.

Priority

The application does not claim foreign or domestic priority. Accordingly, the application has been examined with 9/11/2003.

Specification

1. Objection to claim 5 for improper antecedent basis for the claimed subject matter to claim 5 is withdrawn.

Claim Objections

1. Objection to claim 1 is withdrawn.
2. Objection to claim 11 is withdrawn.

Claim Rejections - 35 USC § 101

1. Rejections under 101 for claim 1, 5, 16, and 21-23 for lacking a tangible result is respectfully withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 11, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Patent Application Publication 2004/0210563 by Zait et. al. (hereafter Zait).

Claim 1:

Zait discloses, **a method for monitoring a query during runtime, said query involving a plurality of join operations; the method comprising the steps of:**

running the query according to a first join order [0024 and 0003, query is executed according to the one or more operations in an execution plan. Operations may consist of a join order. 0004, discloses determining an optimal join order therefore there must exist other join orders and the most optimal one is selected.]; and

concurrent with running the query, collecting performance statistics about each of the join operations [0024, statistics information is collected from operation which may include join operations.].

Claim 11:

As to claim 11, Zait discloses further comprising the steps of:

running an other query after the query [0024, essentially after finishing a query another query must run. 0026, query is run using execution plan. Further, 0035, after running an execution plan for the optimizer another execution plan is run if the executor and optimizer is different.]; and

selecting an initial join order for the other query based on the collected performance statistics [0024, selects an execution plan for new query.].

Claim 16:

Zait discloses an apparatus for executing a query comprising:

at least one processor[0074, one or more processors];

a memory coupled with the at least one processor[0074, processors execute instructions contained in memory]; and

a database engine residing in memory and executed by the at least one processor, the database engine configured to run a query involving a plurality of join operations according to a first join order [0023-0024. 0023, query statements run by database system. 0024, execution plan is run which contains one or more operations; and therefore a plurality of

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statistics is collected about the operations. Operations may include join operations.]; and, **concurrent with running the query, collect statistics about each of the join operations** [0024, execution statistics collected. That is, while it is run.].

Claims 2-4, 9-10, 12-15, and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zait as applied to claims 1, 11, and 16 above, and further in view of U.S. Patent 5345585 by Iyer et. al. (hereafter Iyer)

Claim 2:

As to claim 2, Zait discloses basing operations on statistics [0035]; however Zait does not explicitly ¹state in great detail, further comprising the step of:

changing the first join order, during running of the query, to a second join order.

However, Iyer discloses optimizing the processing of a plurality of join operations to join relations of a database in conjunction with a computer processing a database query, and rearranging join operations based on lower costs (i.e. statistics) [Col. 7 lines 39-42, col. 5 lines 61-62, and col. 8 lines 57-60].

Both inventions are within the same field of endeavor, which is query optimization.

Therefore, it would have been obvious to one of ordinary skill at the time the invention was

¹ Zait however does disclose if execution statistics differ from the optimizer estimates for execution plan then optimizer generates a second execution plan for the query statement based on statistics 0035, which does encompass changing join operations and thus join orders.

made to have modified Zait to include **changing the first join order, during running of the query, to a second join order** based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because by changing the join order to optimally select lower cost plans, it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 3:

As to claim 3, Zait discloses, further comprising the step of:

Zait discloses **collecting additional statistics about each of the join operations** [0031-0032, additional statistics about operations such as counters are collected.]; however, Zait does not explicitly ²state in great detail about the first join order is changed to the second join order.

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (i.e. lower cost, which is a statistic.) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods (Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).

Both inventions are within the same field of endeavor, which is query optimization. Therefore, it would have been obvious to one of ordinary skill at the time the invention was

² See footnote 1.

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made to have modified Zait to include **the first join order is changed to the second join order** based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because by changing the join order to optimally select lower cost plans, it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 4:

As to claim 4, Iyer discloses, further comprising the step of:

changing the second join order to either the first join order or a third join order based on the additional statistics [Iyer further discloses, Col. 6 lines 26-31 and Col. 12 lines 65-67 to col. 13 lines 1-16, additional costs are further compared in a post processing method after join operations are changed. And another join order is identified].

Claim 9:

As to claim 9, Zait discloses , **comprising the steps of:**

identifying a predetermined sample size [0032, sample of execution statistics];

performing the step of collecting statistics for the predetermined sample size [0032];

evaluating the collected statistics [0032, evaluate by adjusting collected statistics]; and

Further, Zait discloses running operations based on statistics [0035]; however Zait does not explicitly ³disclose in great detail **changing the first join order to a second join order**.

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (lower cost) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods (Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).].

Both inventions are within the same field of endeavor, which is query optimization. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to include **changing the first join order to a second join order** based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because by changing the join order to optimally select lower cost plans, it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 10:

As to claim 10, Zait discloses, comprising the steps of:

collecting additional statistics for substantially all of the query [0032-0033];

comparing the additional statistics with the collected statistics [0032-0033]; and

³ See footnote 1.

adjusting the predetermined sample size, for use by a subsequent query, according to results of the comparing step [0032-0033].

Claim 12:

A method for optimizing a query join order during runtime, said query involving a plurality of join operations, the method comprising the steps of:

running the query according to a first join order [0024, running a query based on a selected execution plan]; and

concurrent with running the query, collecting statistics about each of the join operations[0024, statistics are collected during execution]; and

based on statistics, while running the query the query, such that the query continues to run according to the preferred ⁴ join order [0035, an execution statement is run for a query]

However, Zait does not explicitly ⁵ disclose selecting a preferred ⁶join order.

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (lower cost) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods

⁴ Examiner has interpreted preferred to essentially be the least costly or most optimal for the remainder of the action.

⁵ See footnote 1.

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(Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to include selecting a preferred join order based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because both inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 13:

The method according to claim 12, and further discloses comprising the steps of:

Zait does not explicitly disclose the steps of

determining respective fan-in statistics for each of the join operations; and

selecting the preferred join order based on the fan-in statistics.

However, Iyer discloses rearranging joins according to lower costs in Col. 8 lines 58-60, and further discloses that the cost of a sequence of join operations is based on time savings that are

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obtained when a plurality of join orders using given join methods are joined in a particular order. For example, one criterion for cost determination can be the size of the resulting relations of joins wherein it would be desirable to perform joins that result in smaller tables earlier than joins that result in larger tables later (Col. 9 lines 3-10). That is fan-in and fan-out statistics are measured and the lower cost join is selected.

Therefore it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to have included the steps of

determining respective fan-in statistics for each of the join operations; and

selecting the preferred join order based on the fan-in statistics

based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because both inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it optimizes queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023]. Either way, both inventions are directed towards query optimizations and therefore have motivation to combine.

Claim 14:

Claim 14 is rejected under the same rational as applied to claim 13.

Claim 15:

As to claim 15,

Zait discloses **collecting statistics for a predetermined number of records from a table involved in the query** [Zait, 0024, 0027, 0032, and 0035 in which statistics information collected and utilized for execution plan]. However Zait does not explicitly ⁷disclose **performing the step of selecting a preferred join order after.**

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (i.e. lower cost, which is a statistic) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods (Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to include **performing the step of selecting a preferred join order after** based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because both inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023]. Further, it does not make any sense to select something and call it a preferred join order based on nothing.

⁷ See footnote 1.

Claim 17:

As to claim 17, Zait discloses selecting operations based on statistics [0035]; however Zait does not explicitly disclose in great detail, **wherein the database engine is further configured to select a preferred join order.**

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (lower cost) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods (Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to include selecting a preferred join order based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because both inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 18:

Zait discloses, **wherein the database engine further comprises:**

a manager configured to determine the select the preferred join order [Zait, 0024, execution plan is generated. 0035, Executor and optimizer manage operations.];

an execution engine, coupled with the manager, and configured to execute the query according to the preferred join order [Zait, 0024, selection operation is executed]; and

a statistics collector, coupled with the manager and the execution engine, configured to monitor execution of each of the plurality of join operations, capture respective performance data [Zait, 0024, collection of executed statistics]; and

communicate the respective performance data to the manager [Zait, 0035, changes execution plan based on statistics data.].

Claim 19:

Zait discloses, wherein the statistics include respective fan-in statistics and respective fan-out statistics for each of the join operations [Zait, 0004, selectivity of query predicates may be taken into account when estimating the cost (i.e. statistic) of a particular access method or when determining optimal join order.].

Claim 20:

Zait discloses, **the apparatus according to claim 16, wherein the statistics are collected for a predetermined number of records from a table involved in the query [Zait, 0032].**

Claim 21:

Zait discloses, **a program product, comprising:**

program code configured upon execution to perform the steps of:

**running the query according to a first join order [0024];
concurrent with running the query, collecting statistics about each of the join
operations [0024], and
based on the collected statistics, while running the query, such that the query
continues to run according to the preferred join order[0024]; and
a signal bearing medium bearing the program code [0076].**

However Zait does not explicitly ⁸ disclose, **selecting a preferred join order.**

⁸ See footnote 1.

On the other hand, Iyer discloses initial join order implying that another order may exist [abstract]. Disclosing that there is an identification of a more optimal (lower cost) join order for the join operations given the current assignment of join methods (col. 8 lines 58-60). And further discloses that the optimal join order is selected based on a given selection of join methods (Col. 9 lines 38-40). Thereafter, given a join order the optimal join methods are selected (Col. 9 lines 38-40).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait to include **selecting a preferred join order** based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because both inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023].

Claim 22:

Claim 22 contains similar limitations to claim 13 and is therefore rejected on the same bases as claim 13.

Claim 23:

Claim 23 contains similar limitations to claim 14 and is therefore rejected on the same basis as claim 14.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zait in view of Admitted Prior Art in Background of Specifications (hereafter Background).

Claim 5:

Zait discloses **the method according to claim 1**, however does not explicitly disclose in detail **wherein the plurality of join operations include:**

- a first join that includes a first table and a second table;**
- a second join that includes the first table and the second table.**

However, the background discloses on page 4 lines 7-13 that a plurality of join operations may include joining of tables A->B->C and A->C->B which is similar to joining X->Y and X→Z.

Therefore it would have been obvious to one of ordinary skill at the time of the invention was made to have included the a plurality of join operations where a first join includes a join-from file and a first join-to file and a second join that includes the join-from file and a second join-to file, based on the disclosure of the Background. One of ordinary skill in the art would have been motivated to do so because both the Background and Zait are directed towards optimizing query plans and that join operations involve join ordering to optimize query plans [Background, Page 4 lines 7-8]. Lastly, Zait utilizes statistics from operations such as joins to produce query plans as

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seen in 0035 and 0027 therefore to combine the two would have been obvious to achieve a common goal of optimizing queries.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zait and Background further in view of U.S. Patent 5345585 by Iyer (hereafter Iyer).

Claim 6:

Zait and Background disclose the method according to claim 5, however they do not explicitly disclose further comprising the steps of:

determining respective fan-in statistics for the first join and second join; and

changing the first join order to a second join order if the respective fan-in statistics indicate that the second join is more likely to cause fan-in than the first join.

However, Iyer discloses rearranging joins according to lower costs in Col. 8 lines 58-60, and further discloses that the cost of a sequence of join operations is based on time savings that are obtained when a plurality of join orders using given join methods are joined in a particular order. For example, one criterion for cost determination can be the size of the resulting relations of joins wherein it would be desirable to perform joins that result in smaller tables earlier than joins that result in larger tables later (Col. 9 lines 3-10). That is fan-in and fan-out statistics are measured and the lower cost join is selected.

Therefore it would have been obvious to one of ordinary skill at the time the invention was made to have modified Zait and the Background to have included the steps of

determining respective fan-in statistics for the first join and second join; and

changing the first join order to a second join order if the respective fan-in statistics

indicate that the second join is more likely to cause fan-in than the first join

based on the disclosure of Iyer. One of ordinary skill in the art would have been motivated to do so because all inventions are directed towards query optimization and execution, and further by changing the join order to optimally select lower cost plans it improves queries and join operations [Iyer, Col. 7 lines 10-13 and Col. 7 lines 39-42]. This is essentially the same goal as Zait which is collecting statistics (i.e. costs) to improve performance in query operations [0023] and further satisfying the Background in optimizing query plans having join operations involving join order [Background, Page 4 lines 7-8].

Claim 7 is rejected under the same rational as applied to claim 6.

Claim 8 is rejected under the same rational as applied to claim 6.

Response to Arguments

Applicant's arguments filed 7/5/06 have been fully considered but they are not persuasive. Applicant's assert the following (numbered):

1. Affidavit 1.131 or Declaration of Prior Invention.

In response, the declaration filed on 7/5/06 under 37 CFR 1.131 has been considered but is ineffective to overcome the cited references (U.S. Patent Application Publication 2004/0210563 hereafter Zait).

Based on the evidence supplied, it appears that applicant is relying on conception prior to the effective date of the reference, followed by diligence until the U.S. filing date.

*The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Zait reference. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897).*

From MPEP 715.07:

The essential thing to be shown under 37 CFR 1.131 is priority of invention and this may be done by any satisfactory evidence of the fact. FACTS, not conclusions, must be alleged. Evidence in the form of exhibits may accompany the affidavit or declaration. **Each exhibit relied upon should be specifically referred to in the affidavit or declaration, in terms of what it is relied upon to show.**

A general allegation that the invention was completed prior to the date of the reference is not sufficient. *Ex parte Saunders*, 1883 C.D. 23, 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, a declaration by the inventor to the effect that his or her invention was conceived or reduced to practice prior to the reference date, **without a statement of facts demonstrating the correctness of this conclusion, is insufficient to satisfy 37 CFR 1.131.**

When reviewing a 37 CFR 1.131 affidavit or declaration, the examiner must consider all of the evidence presented in its entirety, including the affidavits or declarations and all accompanying exhibits, records and "notes." **An accompanying exhibit need not support all claimed limitations, provided that any missing limitation is supported by the declaration itself.** *Ex parte Ovshinsky*, 10 USPQ2d 1075 (Bd. Pat. App. & Inter. 1989).

The affidavit or declaration and exhibits must clearly explain which facts or data applicant is relying on to show completion of his or her invention prior to the particular date. **Vague and general statements in broad terms about what the exhibits describe along with a general assertion that the exhibits describe a reduction to practice "amounts essentially to mere pleading, unsupported by proof or a showing of facts"** and, thus, does not satisfy the requirements of 37 CFR 1.131(b). *In re Borkowski*, 505 F.2d 713, 184 USPQ 29 (CCPA 1974). **Applicant must give a clear explanation of the exhibits pointing out exactly what facts are established and relied on by applicant.** 505 F.2d at 718-19, 184 USPQ at 33. See also *In re Harry*, 333 F.2d 920, 142 USPQ 164 (CCPA 1964) (Affidavit "asserts that facts exist but does not tell what they are or when they occurred.").

The declaration and the accompanying exhibit do not provide enough evidence to support conception of the claimed invention. For example, there is no explanation of the exhibit or positive statement on the declaration to support the limitation running the query according to a first join order; and concurrently with running the query, collect performance statistics about each of the join operations in claim 1. Applicants did not give a clear explanation pointing out exactly what facts are established and relied upon from the exhibit with respect to this particular limitation.

The aforementioned limitation in claim 1 merely provides one example of insufficient evidence supporting conception of the claimed invention. It is to be understood that there are other claimed limitations that are not sufficiently supported by the evidence provided by the declaration and the accompanying exhibit.

From MPEP 2138.06,

THE ENTIRE PERIOD DURING WHICH DILIGENCE IS REQUIRED MUST BE ACCOUNTED FOR BY EITHER AFFIRMATIVE ACTS OR ACCEPTABLE EXCUSES

An applicant must account for the entire period during which diligence is required. *Gould v. Schawlow*, 363 F.2d 908, 919, 150 USPQ 634, 643 (CCPA 1966) (Merely stating that there were no weeks or months that the invention was not worked on is not enough.); *In re Harry*, 333 F.2d 920, 923, 142 USPQ 164, 166 (CCPA 1964) (**statement that the subject matter "was diligently reduced to practice" is not a showing but a mere pleading**). A 2-day period lacking activity has been held to be fatal. *In re Mulder*, 716 F.2d 1542, 1545, 219 USPQ 189, 193 (Fed. Cir. 1983) (37 CFR 1.131 issue); *Fitzgerald v. Arbib*, 268 F.2d 763, 766, 122 USPQ 530, 532 (CCPA 1959) (Less than 1 month of inactivity during critical period. Efforts to exploit an invention commercially do not constitute diligence in reducing it to practice. An actual reduction to practice in the case of a design for a three-dimensional article requires that it should be embodied in some structure other than a mere drawing.); *Kendall v. Searles*, 173 F.2d 986, 993, 81 USPQ 363, 369 (CCPA 1949) (**Diligence requires that applicants must be specific as to dates and facts.**).

The period during which diligence is required must be accounted for by either affirmative acts or acceptable excuses. *Rebstock v. Flouret*, 191 USPQ 342, 345 (Bd. Pat. Inter. 1975); *Rieser v. Williams*, 225 F.2d 419, 423, 118 USPQ 96, 100 (CCPA 1958) (**Being last to reduce to practice, party cannot prevail unless he has shown that he was first to conceive and that he exercised reasonable diligence during the critical period from just prior to opponent's entry into the field**); *Griffith v. Kanamaru*, 816 F.2d 624, 2 USPQ2d 1361 (Fed. Cir. 1987) (Court generally reviewed cases on excuses for inactivity including vacation extended by ill health and daily job demands, and held lack of university funding and personnel are not acceptable excuses.); *Litchfield v. Eigen*, 535 F.2d 72, 190 USPQ 113 (CCPA 1976) (budgetary limits and availability of animals for

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testing not sufficiently described); *Morway v. Bondi*, 203 F.2d 741, 749, 97 USPQ 318, 323 (CCPA 1953) (voluntarily laying aside inventive concept in pursuit of other projects is generally not an acceptable excuse although there may be circumstances creating exceptions); *Anderson v. Crowther*, 152 USPQ 504, 512 (Bd. Pat. Inter. 1965) (preparation of routine periodic reports covering all accomplishments of the laboratory insufficient to show diligence); *Wu v. Jucker*, 167 USPQ 467, 472-73 (Bd. Pat. Inter. 1968) (applicant improperly allowed test data sheets to accumulate to a sufficient amount to justify interfering with equipment then in use on another project); *Tucker v. Natta*, 171 USPQ 494, 498 (Bd. Pat. Inter. 1971) ("[a]ctivity directed toward the reduction to practice of a genus does not establish, *prima facie*, diligence toward the reduction to practice of a species embraced by said genus"); *Justus v. Appenzeller*, 177 USPQ 332, 340-1 (Bd. Pat. Inter. 1971) (Although it is possible that patentee could have reduced the invention to practice in a shorter time by relying on stock items rather than by designing a particular piece of hardware, patentee exercised reasonable diligence to secure the required hardware to actually reduce the invention to practice. "[I]n deciding the question of diligence it is immaterial that the inventor may not have taken the expeditious course..").

The affidavit filed on 7/5/06 under 37 CFR 1.131 has been considered but is ineffective to overcome the cited references. The evidence submitted is insufficient to establish diligence from a date prior to the effective date of the Zait reference (April 21, 2003) to the US effective filing date of this application (September, 11 2003) because there is a period lacking activity. Specifically, the period of 4/21/2003 to date of 9/11/2003.

2. The applicant's assert that none of the art cited by the Examiner, most notably Zait et. al. and Iyer et. al. discloses that join order may be selected dynamically during execution of a query based upon statistics collected during the same execution query.

In response the Examiner respectfully disagrees because the query has not been executed until statistics are collected and an execution plan is selected. Paragraph 0035 is clear on how statistics are gathered and used.

Paragraph 0035 discloses the following:

*FIG. 8 illustrates an example of how execution statistics are used to improve the performance of a query statement. An optimizer 804 generates an execution plan 808 for a query statement 806 based on dictionary statistics 802. Executor 812 executes execution plan 808 and execution statistics 814 are collected. **If execution statistics 814 differ from the optimizer estimates for execution plan 808, then optimizer 804 generates a second execution plan 810 for query statement 806 based on execution statistics 814.***

It is noted that Applicant's agree that Zait discloses collecting statistics during the execution of the query; however Applicant's assert that the collected statistics are only used to optimize the performance of later queries. The examiner respectfully disagrees that the collected statistics are used to optimize the performance of later queries, please note that element 806 is the element that starts a later query. According to figure 8 there is no loop back to start a new query. Hence, the query is not fully executed until the fully optimized execution plan is selected and therefore join order may be selected dynamically (e.g. on the fly) based upon statistics collected during the same execution of that query.

Conclusion

The prior art made of record listed on PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Pham whose telephone number is (571) -272-3924 or fax (571) - 273 - 3924. The examiner can normally be reached on Monday - Friday 8am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) - 272-4049. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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